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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,902	10/02/2003	Raksh Vir Jasra	101090.0001US	2366

7590 07/02/2004
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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/678,902	Applicant(s) JASRA ET AL.	
	Examiner Sikarl A. Witherspoon	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 1 recites the broad recitation "...acylation of alkylated benzene derivatives...", and the claim also recites "preferably at the para position..." which is the narrower statement of the range/limitation.

In claim 10, the claim recites the broad recitation, "...at a temperature in the range of 100 to 140° C...", and the claim also recites, "preferably at a temperature in the range of 100 to 120° C", which is the narrower statement of the range/limitation.

Also regarding claim 1, the phrase "such as" in line 3 renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choudary et al (US 6,384,285) and further in view of Siegel et al (US 5,395,975).

The instant claims are drawn to a process for acylating alkyl-benzene derivatives by reacting said derivatives with an acylating agent in the presence of a solvent selected from nitrobenzene, dichlorobenzene, dimethylsulfolane, and benzonitrile, and in the presence of a crystalline alumino silicate catalyst. Further limitations include the benzene derivative being isobutylbenzene and the acylated product being isobutylacetophenone, the alumino-silicate catalyst being selected from zeolite- Y and zeolite – beta, the catalyst being modified with rare earth cations, and the acylating agent being acetic anhydride.

Choudary et al teach a process for the preparation of 4'-isobutylacetophenone by reacting isobutylbenzene with acetic anhydride as an acylating agent, in the presence of a zeolite beta catalyst, at temperatures between 60 and 165° C, for 2-12 hours, followed by separation of the catalyst and recovering the product by convention methods (see abstract). The reference further teaches that the catalyst is a metal exchanged zeolite, wherein the metals are selected from iron, zinc, cerium, and lanthanum, and that isobutylene is used as reaction solvent (col. 2, lines 17-27). The zeolite beta catalyst used has a Si/Al ratio ranging from 5 to 100 (col. 3, lines 42-45). The metal content of the zeolite is from 1 to about 10 weight percent (col. 4, lines 3-7).

The difference between Choudary et al and the present invention is that Choudary et al teach isobutylbenzene as solvent, which is not the solvent(s) used by applicants, and Choudary et al do not expressly teach a percentage selectivity toward the para position in the range of 70 to 100%, as claimed by applicants.

The examiner purports that it would have been obvious to a person of ordinary skill in the art, at the time the present invention was made, to employ any solvent known to be useful in acylation reactions, including that which is taught by Choudary et al. Furthermore, Siegel et al teach an acylation reaction for preparing acylated aromatic compounds using a solvent such as nitrobenzene, or other hydrocarbons (col. 4, lines 10-12). Accordingly, it would also have been obvious to a person of ordinary skill to combine the process taught by Siegel et al with the process taught by Choudary et al in order to allow for the use of different solvents known in acylation reactions. A person of

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ordinary skill would have been motivated to combine such teaching in order to employ a solvent that could enhance the selectivity of the desired acylated benzene product.

The percentage selectivity towards the para-position, claimed by applicants would have also been obvious to a person of ordinary skill because such a person would know how to adjust reaction conditions to afford the desired substitution on the benzene ring, for instance, by employing para-directing substances in the reaction.

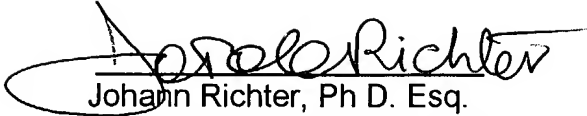
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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